EPA Regional Science Program (Projects 2004 – 2020) – The State of Nebraska

Regional Applied Research Effort (RARE) Program

Green Infrastructure (GI) Monitoring—Phase 2 (Nebraska) Zip Code: 68007
RSP #: 1877
Principle Investigator: Dr. William Shuster, National Risk Management Research Laboratory (NRMRL)
When: 2014-2016 Funding: $100,000
What: Facilitation of an additional 2 years of GI monitoring for demonstration project that was selected by the City of Omaha, following a soils research investigation that was performed in Phase I.
Results: Long term tracking of the performance and natural dynamic properties of GI implementation as it matures, supporting environmental and economic efficiencies for storm water run-off.
Contacts: Dr. William Shuster 513-569-7244, Dr. Amy Shields 913-551-7396

Green Infrastructure Research—Omaha, NE Phase I—Completed (Nebraska) Zip Code: 68007
RSP #: 1876
ORD Principle Investigator: Dr. William Shuster, National Risk Management Research Laboratory (NRMRL)
When: 2012-2013 Funding: $100,000
What: Investigate soils, scope a modeling strategy, and outline and implement monitoring needs for the City of Omaha in a targeted green infrastructure demonstration.
Results: Establishment of a design and implementation document of a green infra-structure pilot that can be used as a case study for other cities was developed.
Contacts: Robin Baily, 513-569-7906, Dr. William Shuster 513-569-7244

Baseline Scenario for the Future Midwest Landscape Study — Completed (Regional)
ORD Principle Investigator: Dr. Megan Mehaffey, National Exposure Research Laboratory (NERL)
RSP #: 1253
When: 2008-2009 Funding: $150,000
What: ORD and Region 7's Future Midwestern Landscape Research Study —Baseline Data Preparation
Results: Physical and biological data acquisition and analyses necessary to facilitate model development.
Contacts: Dr. Megan Mehaffey 919-541-4205

LAND USE CHANGES IN CONSERVATION RESERVE PROGRAM LANDS — COMPLETED (REGIONAL)
RSP #: 1390
ORD Principle Investigator: Dr. Tim Johnson, National Risk Management Research Laboratory (NRMRL)
When: 2007-2009 Funding: $100,000
What: Development of predicted land use changes from the Conservation Reserve Program (CRP) Lands.
Results: Energy crop production estimates by county were calculated for the Midwest.
Contacts: Dr. Tim Johnson 919-541-0575

K-STATE BIOFUELS IMPACT— COMPLETED (REGIONAL)
RSP #: 1269
ORD Principle Investigator: Dr. Tim Johnson, National Risk Management Research Laboratory (NRMRL)
When: 2007-2011 Funding: $100,000
What: Kansas State University performed an investigation of select land-use activities and ecosystem conditions pertaining to large-Scale f Production and Implementation in the Northern Great Plains and Midwest.
Results: Quantification of soils and their relationship to increased biofuels production as part of EPA's role to determine secondary environmental effects for the Renewable Fuel Standards under the Energy Policy Act.
Contacts: Dr. Tim Johnson 919-541-0575

GREAT RIVERS' TRIBUTARIES MODELING— COMPLETED (REGIONAL)
RSP #: 1216
ORD Principle Investigator: Dr. Ricardo Lopez, National Exposure Research Laboratory (NERL)
When: 2006-2008 Funding: $200,000
What: Determining the contributions of hydrodynamics and watershed land cover change on major tributaries of the Missouri River.
Results: The hydrologic models developed depicted flood inundation as a means to better understand tributary effects on large river systems.
Contacts: Dr. Ricardo Lopez 702-798-2394

REGION 7'S RE-MAP ANALYSIS— COMPLETED (REGIONAL)
RSP #: 1405
ORD Principle Investigator: Dr. Steven Paulsen, National Health and Environmental Effects Research Laboratory (NHEERL)
When: 2006-2009 Funding: $100,000
What: Interpretation of Region 7's Regional– Environmental Monitoring and Assessment Program (RE-MAP) data gathered in the mid 2000's.
Results: An ecological assessment of Region 7's rivers and streams formalized in an EPA published report.
Contacts: Dr. Steve Paulsen 541-752-4428

Regional/State/Tribal Innovation Projects

INNOVATION-USE OF NEXT-GENERATION MOLECULAR TOOLS FOR HARMFUL ALGAL BLOOMS AND MICROBIAL SOURCE TRACKING TO SUPPORT WATERSHED RESTORATION IN KANSAS AND NEBRASKA (KANSAS AND NEBRASKA) ZIP CODES: 67487; 68825
ORD Principle Investigator: Dr. Jingrang Lu, National Risk Management Research Laboratory (NRMRL)
When: 2017-2018 Funding: $49,120
What: Monitoring sources of *E. coli* and harmful algal blooms is a challenge for environmental managers. In some areas, *E. coli* has been identified as one of the leading causes of water quality decline. Harmful algal blooms can lead to drinking water contamination and fish or even human poisoning. In Kansas, this project will evaluate the use of new molecular-based technology to identify the cyanobacterial species that produce toxins and factors that promote toxic blooms. In Nebraska, this technology will help identify sources of fecal contamination in rivers and lakes.
Results: Combined with ongoing monitoring efforts, the data will provide a comprehensive assessment of the development of harmful algal blooms in Kansas and sources of fecal pollution in Nebraska watersheds. These assessments will support planning, management and restoration of water resources in Kansas and Nebraska.
Contacts: Dr. Amy Shields 913-551-7396

Regional-ORD Community of Science Networking (ROCS-Net) Program

PFAS ENVIRONMENTAL FATE AND TRANSPORT AND ITS INTERACTION WITH AGRICULTURAL IMPACTS AND SITE RESTORATION (MISSOURI AND NEBRASKA) ZIP CODE: NONE DEFINED.

ORD Principle Investigator: Dr. Blake Schaeffer, National Exposure Research Laboratory (NERL)

When: 2019 Funding: NA

What: As we continue to gain knowledge about new sites and areas impacted by PFAS, we need to better understand how these chemicals move through the environment in order to make better informed decisions regarding 1) the need for and location of additional sampling and monitoring, 2) determining what to sample for, and 3) deciding on the most appropriate remediation strategies. Region 7's regulatory stakeholders have identified our insufficient understanding of PFAS environmental fate and transport as a top regional science need. Specifically, we've identified the role that precursors play in the accumulation of PFAAs and the migration of PFAS from source areas as major areas of emphasis as we continue to evaluate impacted sites.

Results: A collaboration that can lead to a better understanding of how PFAS moves and transforms through environmental media, regulators can provide a clearer and more concise message to the public and potentially impacted entities.
Contacts: EPA: Daniel O'Connor 913-551-7868, Dr. Christopher Taylor 913-551-7396; MO:

Regional Science Program Contact: Dr. Christopher Taylor, EPA Region 7 Regional Science Liaison to the Office of Research and Development, 913-551-7736 or [HYPERLINK "mailto:taylor.christopher@epa.gov"].

LSASD/LTAB/LABS Work for Nebraska, Point of Contact is Tabatha Adkins, 913-551-7128.

- Region 7 Laboratory is analyzing Lead in Tribal drinking water samples in coordination with Wichita State. This is a Safe Drinking Water Act project that trains the Tribal contacts to sample drinking water fountains in tribal schools and day cares, evaluate the data, and then make decisions on the quality. Currently Region 7 is working with the Kickapoo Nation, but this project is scheduled for all R7 tribes. (Mary Mindrup/Bob Dunlevy would have more info). Region Wide (NE, KS, MO, IA).

- The Region 7 Laboratory is supporting the State of Nebraska through a coordinated effort to analyze surface water samples state wide for data evaluation within various Clean Water Act programs. Nebraska submits 110 samples each quarter for total metals and mercury analysis. There are 16 analytical service requests, with 110 samples total each quarter. Eleven of the watersheds (analytical requests) recently experience state water quality standard excursions for Aluminum; Nebraska has added Aluminum to the quarterly analysis. Chadron, Southeast, Red Cloud, St. Paul, East, Norfolk, North Platte, Genoa, Fremont, Scottsbluff, MNNRD, Holdrege, SPNRD Field offices.

- The Region 7 Laboratory supported the State of Nebraska in analyzing Volatile organics in Aurora, NE, ground water. Two analytical service requests approximately 175-200 samples.

- The Region 7 Laboratory supported the State of Nebraska in analyzing wet cake samples, seed corn samples and waste water samples from the AltEn Operating Company LLC – Ethanol Plant Wet-Cake Sludge and Wastewater Byproducts Testing Mead, Saunders County, Nebraska. Region 7 received one analytical service request, 11 samples, and provided technical support on the quality assurance plan, and the analysis plan. The state is still working on this site at Mead, NE. R7 continues to provide technical support as needed.